

Exercise #5: More on Transformation and Texture Mapping

Modify the ‘TransformTest.java’ file that you finished in Exercise 3 to create a ‘TransformMore.java’ file that provides the following features:

1. Construct a “solar system”
 - Create a “sun” by replacing the unit ‘ColorCube’ with a unit *Sphere* mapped with the [fire.jpg](#) image.
 - Create an “earth” by placing at (2.0, 2.0, 2.0) away from the center of the “sun” a half-unit *Sphere* mapped with the [earth.jpg](#) image.
 - Create a “moon” by placing at (1.0, 1.0, 1.0) away from the center of the “earth” a *Sphere* that is 0.175 in size and mapped with the [moon.jpg](#) image.
2. Enable keyboard-based interaction
 - Maintain the original set of keys to control the movement of “solar system”.
 - Add two keys **p** and **d** to rotate the “earth” and its “moon” around respectively the y-axis and x-axis of the earth’s coordinate system.
 - Add two more keys **v** and **c** to rotate the “moon” around respectively the y-axis and x-axis of the moon’s coordinate system.